

Sclerolepis uniflora (Walt.) Porter. Atlantic: near Hammon-
ton.

Willugbaeya scandens (L.) Kuntze. Passaic: near Passaic.

Senecio obovatus Muhl. Sussex: Lake Hopatcong.

PASSAIC, N. J., April 1, 1902.

NOTES ON TWO PARASITIC PLANTS

BY S. B. PARISH

CUSCUTA INDECORA Choisy.—It is stated by Britton and Brown that "indications of a small amount of coloring matter, possibly chlorophyll, have been observed in one species" of *Cuscuta*. To which species they refer I do not know, but I remember such a statement, made some years ago in the *Bulletin of the Torrey Botanical Club*, regarding *C. Gronovii*.

This spring I had the opportunity of observing a considerable number of seedlings of *C. indecora*. The seed must have been aggregated in some way, for the plantlets came up in tufts of twenty or more. They were some two inches in length, and not having found hosts were tangled together. Now what at once attracted the attention was that these tufts showed three distinct bands of color. For their lower third the stems were white and somewhat hyaline, indicating that the cell contents had been mostly absorbed. The next third had a very noticeable tint of light-green, possibly—may one not say probably—indicative of the presence of chlorophyll. The remaining third had the usual yellowish color of the species.

PHORADENDRON FLAVESCENS MACROPHYLLUM Engelm.—The books tell us that birds, eating the fruit of the mistletoe, distribute the seeds by their evacuations. Kerner it is, I think, who adds that as these are watery the heavier seeds are carried down to the under part of the stem of the host, so that the young parasite often makes its appearance in that situation.

These observations are probably true of *Viscum album*, the European mistletoe, but it seems to be different with *Phoradendron*

flavescens, its American analogue, at least here in southern California. Mistletoe is very abundant, and at the proper season one may find seeds glued on branches of trees, on fences and stones, in short, wherever birds alight. I have never seen any that had the appearance of having passed through the digestive tract of a bird. They seemed rather as if left by the bird in cleaning his bill or feet, to which they may have adhered while he was feeding. This is more probable from the fact that seldom do more than two or three seeds appear to have been deposited at one time. Young mistletoes usually, but not always, start from the upper half of the branch on which they grow.

Why *P. flavescens* should be leafy and *P. juniperinum* leafless, has been plausibly explained from the fact that the first species, growing on deciduous trees, needs leaves of its own during the resting period of its host, while the juniper mistletoe needs none since it grows on evergreens. This is a satisfactory explanation, but it evidently needs amendment to make it clear why *P. Bollicanum*, growing on junipers, should be leafy, while *P. Californicum*, which is parasitic on the mesquite and other deciduous hosts, is leafless.

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REVIEWS

The Comparative Embryology of the Rubiaceae*

The second part of Professor Lloyd's study has recently appeared and forms a very valuable as well as interesting contribution to our knowledge of the Rubiaceae. In this paper there are studies of the following species: *Callipeltis Cucullaria*, *Sherardia arvensis*; several species of *Galium*, viz., *Aparine*, *recurvum*, *pilosum*, *Mollugo*, *verum*, *triflorum*, *tinctorum* and *Parisiense*; several species of *Asperula*—*azurea*, *galioides*, *montana*, *setosa*, and *tinctoria*; *Rubia tinctoria*; *Crucianella gilanica*, *C. macrostachya*, *C. herbacea*; *Diodia Virginiana*, and *D. teres*; *Richardsonia pilosa*; and *Houstonia cocrulea* and *H. longifolia*.

* Memoirs of the Torrey Botanical Club, 8: 27-112. pl. 5-15. 15 F. 1902.